

BEE LINES

Winter 2012

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CROPS

AGRICULTURE

Don't Forget About American Foulbrood

Inspections of beeyards for sales permits and health certificates this year revealed a larger-than-expected number of cases of American foulbrood (AFB). AFB was found in all sizes of operations – from hobby to commercial beekeepers – and in many areas of the province.

It is likely that many beekeepers are so concerned about treating for mites that they forget about diseases like AFB. AFB is easily kept under control with annual, thorough inspection of brood frames, treatment with Oxytetracycline and destruction or irradiation of infected bees and equipment. The current price for irradiation is approximately \$5.51 per box with a minimum order of \$420.00 plus shipping. This likely makes irradiation sterilization cost-prohibitive on a small scale. For small-scale beekeepers, burning the equipment is likely the most cost-effective solution. Another issue with irradiated equipment is that the scale is not removed. Although non-viable, these scales can be a problem when trying to determine active AFB cases from sterilized comb.



Burning AFB-infected beekeeping equipment
Photo: Saskatchewan Agriculture

There are several hotspots around the province; however, it is best to assume that it is everywhere and to take the appropriate precautions with your bees. The importance of promptly identifying AFB cannot be over-stressed. Look for disease every time you are looking at a brood frame, destroy or irradiate the infected equipment and bees, and treat your colonies appropriately using the proper treatments.

For more information on irradiation, contact Iotron Technologies Corp., Port

Coquitlam BC, 604-945-8838; or Accion Industries, Pinawa MB, 204-753-2255.

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Saskatchewan
Ministry of
Agriculture

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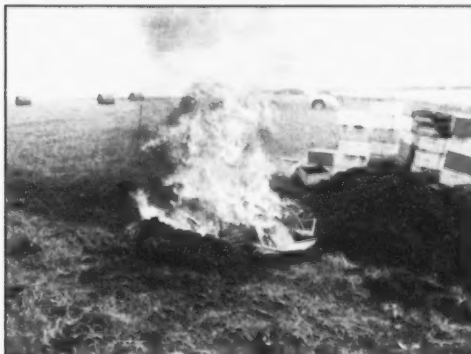
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Photo: Saskatchewan Agriculture

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The rope test to determine AFB infection (note the long brown string from AFB infected brood)
Photo: Saskatchewan Crop Insurance Corp.



A frame heavily infected with AFB scale (note that the scales have hardened, making the rope test impossible). Photo: Saskatchewan Agriculture

Disease Control Recommendations for Mites (2012)

NOTE: The following is an overview of the control options for pests and diseases. Read all labels before applying the treatment. The directions on the label are the law. Application methods can change so label directions take precedence over recommendations provided in this document. At present, there are no control products that can be used during a honey flow.

Management Planning

A management plan for mite control that uses multiple treatment tools is important. Using products with different active ingredients reduces reliance on a single product, and will help fight the development of resistance to a specific active ingredient. After a product is used, test mite levels to determine if the treatment was effective (remember to "test – treat – test").

The following are examples of mite control plans that should be effective for both tracheal and Varroa mites:

1. Organic acid treatment regimen
 - a. Formic acid or Thymovar in the spring
 - b. Oxalic acid in late fall/early winter.
2. Synthetic and organic acids treatment regimen
 - a. Formic acid in the spring
 - b. Checkmite+™ OR Apistan® OR Apivar® in the fall (never use these products at the same time and check for resistance before using these products).

Varroa Mite (*Varroa destructor*) Control

Monitoring:

Monitoring, or testing, is becoming essential in mite management. It is important to know the levels of mites in the bee colonies to be able to make appropriate treatment decisions. Do not treat individual colonies; treat the entire bee yard, if not the entire operation.

There are many methods for monitoring Varroa mite levels, and all have advantages and drawbacks. The two simplest and most effective sampling techniques are described here.

1. Alcohol wash

In a jar containing approximately 150 ml of ethyl alcohol, collect a sample of 300 bees from near the brood area of the colony. Shake the bees vigorously for two to five minutes. Place a white cloth over a bucket and a screen over the white cloth. Pour the bees and alcohol onto the screen, allowing the alcohol to drain into the bucket. Rinse the jar with another 150 ml of alcohol and pour over the sampled bees. Rinse the bees with another 150 ml of alcohol. Look for mites on the white cloth. Adult mites will resemble a reddish-brown flattened oval, one to 1.8 mm long and 1.5 to two mm wide. Return the bees to a jar of alcohol and repeat the process



Taking a 300-bee alcohol sample
Photo: Jennifer Leslie, SBA

until no additional mites are found. The alcohol can be reused for more samples. Alternatively, collect a sample of approximately 300 bees in a jar of alcohol and ship it to the honey bee diagnostic lab to be examined for tracheal and Varroa mites.

Send samples to:

Geoff Wilson
Saskatchewan Ministry of Agriculture
800 Central Ave, Box 3003
Prince Albert SK S6V6G1

2. Sticky bottom boards

Use commercially prepared insect trap glue or a 50:50 mixture of shortening and petroleum jelly to coat a 30x40-cm sheet of thick paper. Place the paper sticky side up on the bottom board of the bee colony and cover with a screen. Leave the sticky board in place for one to three days. Remove the sticky paper and count the mites; divide the number of mites by the number of days the sticky trap was in the colony.

Treatment Thresholds:

Current research suggests that the treatment thresholds for Varroa mites are:

Spring:

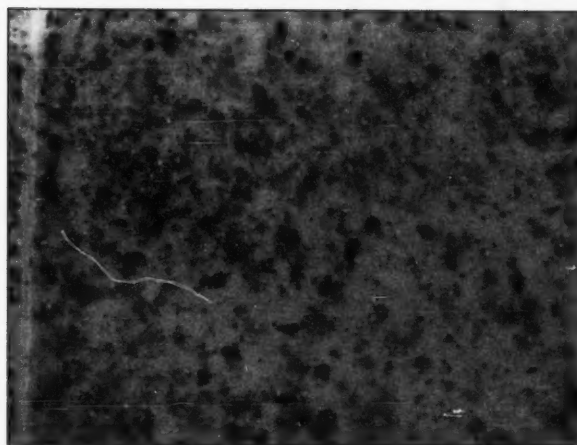
One per cent mite infestation based on a 300-bee alcohol wash (i.e. three mites per 300 bees)
or

Two mites found on a natural drop sticky bottom board within a 24-hour period.

Fall:

Two per cent mite infestation based on a 300-bee alcohol wash (i.e. six mites per 300 bees)
or

10 mites found on a natural drop sticky bottom board within a 24-hour period.



A sticky bottom board with Varroa mites
Photo: Graham Parsons, SBA

Treatment Products

Apistan®

(active ingredient: 10.25% fluvalinate)

Treatment window: Spring and fall

Strips cannot be applied with honey supers on the colonies. Honey supers can be applied after the treatment is removed.

Remove strips from the package just before application. Do not remove unused strips from the original package. Use one strip for every five frames (or less) of bees. The strips should be distributed evenly throughout the brood chamber and need to be in contact with the bees in the brood nest. Remove the strips at the completion of the treatment on day 42. **Caution: Wear chemical-resistant gloves while handling the strips.**

Checkmite+™

(active ingredient: 10% coumaphos)

Treatment window: Spring and fall

Strips cannot be applied with honey supers on the colonies. Honey supers can be applied 14 days after the treatment is removed.

Remove strips from the package just before application. Do not remove remaining strips from the original package. Use one strip for every five frames (or fewer) of bees. The strips should be distributed evenly throughout the brood chamber and need to be in contact with the bees in the brood nest. Remove the strips at the completion of the treatment on day 42. **Caution: Wear chemical-resistant gloves while handling the strips. It is not recommended to treat with Checkmite+™ more than once per year.**

Apivar®

(active ingredient: 3.33% amitraz)

Note: Apivar® has been granted an emergency use registration by the Pest Management Regulatory Agency (PMRA) for the period July 1, 2011, to June 30, 2012. The emergency registration expires on July 1, 2012. Beekeepers should watch for updates on registration for the fall of 2012.

Treatment window: Spring and fall

Strips cannot be applied with honey supers on the colonies. Honey supers can be applied 14 days after the treatment is removed.

Remove strips from the package just before application. Do not remove remaining strips from the original package. Use one strip for every five frames (or fewer) of bees. The strips should be distributed evenly throughout the brood chamber and need to be in contact with the bees in the brood nest. Remove the strips at the completion of the treatment on day 42. **Caution: Wear chemical-resistant gloves while handling the strips.**

Repeated Application Pads

(active ingredient: 65% formic acid)

Treatment window: Spring (mid-May to mid-June) and fall (as soon as the honey supers are removed). *Formic acid treatments must be finished two weeks before honey flow.*

Apply 35 mL of a 65-per-cent formic acid solution in an absorbent pad on the top bars of the colony. Repeat the treatment six times four days apart. Some variations (in accordance with the registration) may be made to the treatment to improve the efficacy. **Caution: Wear appropriate safety gear including goggles, chemical-resistant gloves, respirators fitted with an organic acid filter, protective clothing and boots.**

Oxalic Acid

(active ingredient: >99.6% oxalic acid dihydrate)

Treatment window: Late fall and early spring when there is little to no brood in the colony.

Vapourizer Method: Seal all cracks and the upper entrance, and restrict the lower entrance of the hive. Smoke bees on the bottom entrance. Place two grams of oxalic acid dihydrate onto the vapourizer

and follow the vapourizer's directions to sublime the oxalic acid in the bottom entrance.

Dribble (solution) method: Mix 35g of oxalic acid dehydrate in one litre of 1:1 sugar/water syrup. Apply 5 ml of solution to each bee space. Do not exceed 50ml of solution. **Caution: Wear appropriate safety gear including goggles, chemical-resistant gloves, respirators fitted with an organic acid filter, protective clothing and boots. Do not treat indoors.**

For more information on the conditions of use for Oxalic acid go to:

www.honeycouncil.ca/documents/LabelOxalicE.pdf

Thymovar

(active ingredient: 15g/wafer)

Treatment window: spring and late summer to early autumn. For optimal efficacy with the least brood damage, maximum daytime temperatures should be between 12C and 30C. Thymovar may not be applied during a honey flow or when there is surplus honey on the hive.

Singles: Cut wafers in half. Apply half wafers on the frames in each of the two opposite corners of the brood chamber (Note: this is a total of one wafer for a single brood chamber colony). Remove spent wafers after three to four weeks. Reapply Thymovar at the same rate for an additional three- to four-week period.

Doubles: Apply one wafer on the frames in each of the two opposite corners of the top brood chamber (Note: this is a total of two wafers for a single brood chamber colony). Remove spent wafers after three to four weeks. Reapply Thymovar at the same rate for an additional three- to four-week period.

Caution: Wear appropriate safety gear, including goggles, chemical-resistant gloves, protective clothing and boots.

Mite-Away Quick Strips™ (MAQS)

(active ingredient: 46.7% formic acid)

Note: At the time of writing, MAQS is not registered and cannot be used until the registration is in place. The registration is in progress; beekeepers should watch for news on registration and availability in 2012. MAQS™ is a single-application formic acid treatment for Varroa mites.

Treatment window: treatment must be completed at least 14 days before a honey flow; daytime highs should be between 10C and 33C.

Place 2 strips staggered across the tops of the frames so that the strips reach both sides. Make sure the strips are between five and 10 cm apart. In double-brood chambered colonies, apply the strips between the brood chambers. In single-brood chambered colonies, apply the strips on top of the brood chamber. Make sure that the bottom entrance is fully open. **Caution: Wear appropriate safety gear including goggles, chemical-resistant gloves, protective clothing and boots. Avoid inhaling vapours.**

Non-Chemical Management Techniques for Varroa Mites

1. Stock Selection

Re-queen colonies with stock selected for Varroa resistance/tolerance.

2. Mite trapping with drone brood (may not be practical on a large scale)

Remove old combs that contain drone brood. Place plastic frame with drone foundation into the brood chamber and allow the bees to make drones. Remove the comb before the drones have emerged. Scrape the drone brood off the foundation and replace the frame in the colony. Remove the scrapings from the beeyard and render the wax.

Alternatively, freeze the frame for a week to kill the Varroa mites, and return it to the hive for the bees to clean up. This treatment needs to be repeated six to eight times during a season to achieve 80 to 90 per cent efficacy. Do not allow the drones to hatch: hatching drones will greatly increase the Varroa mite levels in the colony.

3. Screened Bottom Boards

Use an 8x8-inch piece of screened hardware cloth to create a bottom board with at least a 1½-inch space below the screen. Screened bottom boards have an efficacy rate of zero to 30 per cent. **Note:** These boards may slow down colony development in cold climates.

Tracheal Mite (*Acarapis woodi*) Control

Monitoring:

Samples of approximately 300 bees in alcohol can be shipped to the honey bee diagnostic lab to be examined for tracheal and Varroa mites. Send samples to:

Geoff Wilson
Saskatchewan Ministry of Agriculture
800 Central Ave, Box 3003
Prince Albert SK S6V6G1

Treatment Products

Repeated Application Pads

(active ingredient: 65% formic acid)

Treatment window: Spring (mid-May to mid-June) and fall (as soon as the honey supers are removed). *Formic acid treatments must be finished two weeks before honey flow.*

Apply 35 mL of a 65-per-cent formic acid solution in an absorbent pad on the top bars of the colony. Repeat the treatment six times four days apart. Some variations (in accordance with the registration) may be made to the treatment to improve the efficacy. **Caution: Wear appropriate safety gear including goggles, chemical-resistant gloves, respirators fitted with an organic acid filter, protective clothing and boots.**

Menthol

(active ingredient: menthol crystals)

Note: For more information, see the CAPCO Note "Scheduling of menthol for honey bee tracheal mite control" at www.hc-sc.gc.ca/cps-spc/pubs/pest/_decisions/c92-05/index-eng.php.

Treatment window: Spring (mid-May to mid-June) and fall (as soon as the honey supers are removed). *Menthol treatments must be finished two weeks before honey flow.*

Warm the shortening just to the melting point (65C). Mix the warm shortening with an equal amount of menthol by weight. Dip 30x30-cm sheets of corrugated cardboard into the mixture until saturated; remove and cool. Store the sheets in a sealed container in the freezer until they are to be used. Place one sheet of cardboard on the bottom

board of the hive and replace it after seven days. Remove the treatment after 14 days. **Caution: Wear appropriate safety gear including goggles and chemical-resistant gloves. Use in a well-ventilated area.**

Who Wants the Family Farm and When?

Farm Succession Tools to Engage Families in Dealing with Conflict and Change.

by Leroy Bader, PAg
Regional Farm Business Management Specialist,
Tisdale
Saskatchewan Ministry of Agriculture

Farm succession involves the transfer of knowledge, skills, labour, management and ownership of the farm operation from the retiring generation to the next. Succession, in any family business, is a process rather than an event. A successful transition can be accomplished by having a shared vision, involving everyone in the family and understanding the complexities of a family business.

The Saskatchewan Ministry of Agriculture is pleased to present Elaine Froese, who will lead two succession planning workshops for Saskatchewan farm families. During these one-day workshops, Elaine will focus on two key areas: "Who Wants the Farm and When?", which deals with farm succession planning tools for action; and "Discussing the Undiscussabull™", which gives tools for talking about tough issues in farm transfer.

Workshops will be held in Saskatoon on January 23, 2012, and in Regina on January 24, 2012.

Registration is \$50 (lunch included). Family rates are available. Succession planning is eligible for funding under the Farm Business Development Initiative. To register, or for more information, contact the Agriculture Knowledge Centre at 1-866-457-2377.

Appropriate Labeling of Bee Samples

This year has seen a large number of samples sent to the bee lab with insufficient label information.

In order for your samples to be promptly analyzed and processed and the results returned to you, the bee lab needs to have sufficient label information.

Please follow the guidelines below when labeling the box, jars and packaging sheet.

Box label: provide your full mailing address regardless of whether you are mailing, shipping or dropping the samples off at the lab yourself.

Jar label: provide your name, sampling location and sampling date (see example below).

Name: Geoff Wilson
Sample: Pasture yard sample
Date Sampled: Aug. 13, 2011

Packaging sheet: provide your name, sampling location, sampling date and the tests you wish performed on each sample (see example below).

Geoff Wilson		
Sample	Date	Tests
Pasture yard	Aug. 13/11	Varroa, tracheal mites
Home yard	Aug. 13/11	Varroa
Orchard yard	Aug. 13/11	Tracheal mites

Honeybee Biosecurity Initiative

The Canadian Food Inspection Agency, with the assistance of the provinces and the Canadian Honey Council, is in the process of developing biosecurity protocols for bees in Canada through the Growing Forward initiative. This program is intended to help beekeepers keep their bees healthy and identify where future initiatives and programs should be directed to best serve the health of honey bees in Canada. Please take the time to read the letter on the following page and fill out the on-line survey.



November 25, 2011

Dear Beekeeper

You are invited to participate in a confidential national study seeking input from the bee industry on disease, pest, and parasite management practices. These management practices collectively are called farm level biosecurity. The results of the study will be used to identify potential best practices, gaps or risks, and provide important information to support the development of a Voluntary National Farm Level Biosecurity Standard for the Canadian beekeeping industry. Your input is important to ensure that this Standard is practical, achievable and relevant in the context of Canadian beekeeping.

Some of the benefits of biosecurity management to the beekeeper may be:

- ✓ Less risk of exposure, introduction and spread of diseases, pests and parasites
- ✓ Less time and money spent on treatments
- ✓ Better honey production by stronger colonies
- ✓ Improved domestic and international marketability of your honey and bee products
- ✓ Reduced winter losses from causes other than cold weather
- ✓ Improved reputation for healthy colonies
- ✓ Less chance of developing treatment resistance
- ✓ Less chance of devastation from the introduction of a new threat.

Continuation or orderly resumption of inter-provincial and international trade in the event of a serious outbreak

Serecon Management Consulting Inc. (Alberta) [www.serecon.ca] has been contracted by the Canadian Food Inspection Agency (CFIA) to develop this Standard and to benchmark biosecurity management practices on behalf of the beekeeping industry in Canada (honey bees and other pollinators including alfalfa leafcutting bees and bumble bees).

To protect your confidentiality, your Provincial Apiarist who administers honey beekeeper registrations in your province, has sent this request to participate directly to you. Your name or contact information has not been shared with CFIA or the consulting firm. You are requested to complete an on-line consultation form that you can log on to anonymously. At no time are you required to provide personal identifying information.

- ✓ **Please respond by January 20, 2012**
- ✓ Go to www.beebiosecurity.ca to connect to the secure web site.
- ✓ If you don't have Internet access, please request access and assistance from a friend or relative who does, or use the computer services at your local public library.
- ✓ Alternatively, you may contact Serecon (contact information below) to request that a paper copy of the consultation form be mailed to you.
- ✓ Average completion time is between 30 minutes and 1 hour.
- ✓ You may receive an invitation to participate in this consultation more than once through various organizations – Please complete only one form per beekeeping operation.

Whether you are a large commercial beekeeper or small operator with a few colonies, it's important that your voice be heard. This is not an annual consultation and your participation will NOT obligate you to participate in further consultations on this topic. Any follow-up, to obtain clarification or further information will occur only with your permission.

Questions about this benchmark consultation, to report technical difficulties or to request a paper copy: Please contact Cheryl March collect at Serecon (0-780-448-7440) or cmarch@serecon.ca.

Questions about the Bee Biosecurity Initiative? Contact your Provincial Apiarist.

Thank You!

Rod Scarlett, Executive Director
Canadian Honey Council

Geoff Wilson, M.Sc., A.Ag
Provincial Specialist, Apiculture
Saskatchewan Agriculture
ph: 306-953-2304 or Geoff.Wilson@gov.sk.ca

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ABOUT THIS PROJECT

Project partners include representatives from The Canadian Food Inspection Agency, Canadian Honey Council (on behalf of provincial beekeeping and honey producer associations), Provincial Apiarists, and the Canadian Association of Professional Apiculturists. The Bee Biosecurity Advisory Committee (BeeBAC), formed in 2010 with representation from all the project partners, will guide the Standard's development.

WHAT IS BIOSECURITY?

Farm level biosecurity refers to practices that reduce incidence through prevention and the more rapid control of the spread of serious infectious diseases, parasites and introduced insect pests. For beekeepers, farm level biosecurity management practices are designed to minimize the introduction and spread of diseases, parasites and pests to, within and beyond the apiary. This includes storage and honey processing facilities as well as protecting bees and equipment while in transit. Bee biosecurity also addresses treatment protocols.

WHY A NATIONAL STANDARD?

It is well recognized that Canadian beekeepers have been practicing biosecurity for many years. The objective of a National Standard is to provide a consistent, country-wide approach to the implementation of biosecurity practices applicable to both small and large scale operations. The outcomes-based National Standard will be complemented by a Producer Guidance Document that will provide specific examples and recommendations to assist the producer in attaining the target outcomes contained in the Standard.

In addition, a National Standard forms a basis for each province to create biosecurity programming for the Canadian beekeeping industry under "Growing Forward".

Growing Forward (GF) is a Federal/Provincial/Territorial (FPT) initiative. Governments are investing \$1.3 billion over 5 years into GF programs. Current GF efforts are aimed at development and implementation of initiatives in support of key objectives, including: Food Safety, Biosecurity, and Traceability.

Beekeeping was chosen by FPT officials as a priority sector for the development of voluntary farm level biosecurity standards. Once the National Standard is developed, provinces under Growing Forward may design and deliver biosecurity programs to beekeepers, which may include biosecurity assessments, training and incentives. Farm level biosecurity is a national initiative within and across agriculture industries. Growing Forward has supported the creation of advisory committees and standard development for several agricultural sectors including but not limited to avian and beef.

**For more information, contact Geoff Wilson, Provincial Specialist, Apiculture,
at 306-953-2304 or geoff.wilson@gov.sk.ca
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